

30. The backplane connector assembly of claim 29, each comprising a single stamped metal part having a first wing and a second wing and a hinge portion, wherein each door in two adjoining linearly stacked receiving cavities comprises one of the wings and the hinge portion is attached to a dividing wall between the two adjoining receiving cavities.

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31. The backplane connector assembly of claim 23, wherein the backplane housing includes frame features that assure a tight fit of the doors within the opening in a closed position.

A marked-up version of the amended claims is attached for reviewing by the Examiner.

## **II. REMARKS**

Claims 8-37 are pending in the application.

Claims 13-22 and 32-37 are withdrawn from consideration due to an election requirement.

Claims 8-12 and 23-31 are presently rejected.

### **A. Claim rejections under 35 U.S.C. § 112**

Claim 26 is presently rejected under 35 U.S.C. § 112, second paragraph. Claim 26 recites the following limitation: The "housing is electrically conductive and is electrically grounded and the doors are non-electrically conductive". The Examiner indicates that the Applicants' disclosure describes the housing being non-conductive and the doors being electrically conductive (pages 8-9).

The Applicants agree with the Examiner that one embodiment of the invention describes the housing as being non-conductive and the doors being electrically conductive. However, alternative described embodiments specify that either the doors or the backplane housing may be constructed of a dielectric material. The specification further recites that the remaining element may be a conductive element coupled to ground. (See, e.g., page 12, lines 19-21). Accordingly, the Applicants respectfully traverse the § 112 rejection, as the alternative embodiments are supported and described in the specification.

**B. Claim rejections under 35 U.S.C. § 102****a. Claims 23, 30-31**

Claims 23, 25-28, 30-31 were rejected under 35 U.S.C. § 102(e) as being anticipated by Roth (U.S. Pat. No. 6,079,881). The Applicants respectfully point out that the doors 34 and 36 are different in construction than those claimed in the presently amended claims. Accordingly, allowance of the rejected claims is respectfully requested.

As seen in Fig. 3, of the '811 reference, Roth discloses a pair of generally planar rectangular shutter doors 34 on a first receptacle end 30 and a single generally planar rectangular shutter door 36 on the second receptacle end 32. Door 36 does not automatically open or close upon the insertion of a connector member, but must be manually opened against the biasing of a torsion spring 56 (column 3, lines 61-63). Reviewing the front door 36 design of the '881 reference, one may see that such design would prevent the stacking of optical components, as the open door would block any adjacent receiving cavity stacked on top of the first cavity. This is in direct contrast with the claims for automatically opening doors of the present invention (claim 23).

The shutter doors 34 pivot about trunions 64 to open positions in response to the insertion of a board connector 12. (Column 4, lines 18-21.) The two shutter doors must overlap in the closed position to prevent against light leakage along optical axis 69 and the migration of dust. (Column 4, lines 22-27.) The reference expressly teaches away from single door embodiments over the use of opposing shutter doors (please see Column 4, lines 34-53).

In contrast, amended claim 23 recites a single piece integral spring member foldable frontal door. The doors of the present invention feature a one-piece design where a single stamped metal part covers two adjacent openings in the connector housing (see claim 30). In reviewing Figure 2 of the Roth patent, it is evident that a minimum of eight components -- 4 springs and 4 shutters -- would be required to cover the rear portion of two housing cavities. In contrast, the present invention requires a single stamped metal part (claim 30). The Roth design results in increased number of moving parts, lower durability, and requires the user to manually manipulate very small components.

**b. Claims 25-28**

Regarding claims 25-28, the Applicants respectfully point out that the Examiner has failed to carry his burden to establish a prima facie case of anticipation. The Applicants have not found a mention in the Roth application that discusses a backplane connector having an electrically conductive and electrically grounded door and a dielectric material backplane housing. In fact, the Roth reference explicitly refers to both the shutter doors and the main body being both molded of dielectric material such as plastic. (See Column 4, lines 54-58.)

This goes directly against the electrically conductive backplane housing expressly recited in claim 26.

Regarding claim 27, neither one of the Roth doors comprises a foldable spring design. Finally, regarding claim 30, the Roth reference fails to anticipate the structure recited in amended claim 30.

The Roth reference fails to teach or suggest claimed elements of the present invention. Moreover, it expressly teaches away from both the single element door concept and the use of mixed conductive, non-conductive elements. It is well established law that a reference cannot be modified in hindsight to support a rejection by modifications directly contrary to those taught. Accordingly, the Roth reference cannot be held to anticipate the present invention. Allowance of the amended claims is respectfully requested.

**C. Claim rejections under 35 U.S.C. § 103****a. Claims 24, 29**

Claims 24, 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Roth. As Examiner correctly indicates Roth fails to disclose a housing having a plurality of linearly stacked receiving cavities or the use of foldable doors being electrically conducted. The Examiner has failed to produce any references that show linearly stacked receiving cavities, each covered by foldable doors, as claimed in claim 29. Furthermore, while the Examiner believes that electrically conductive connector shutters have been used in the art, the Examiner fails to provide any

reference that shows a door including an electrically conductive material and the door being electrically grounded. In order to make a prima facie case of obviousness, and for the Applicants to have a fair opportunity to respond, the Examiner must provide the references showing each of the claimed elements of the invention as well as a suggestion to combine. Absent such references, the present rejection cannot stand.

**b. Claims 8-12**

Claims 8-12 were rejected under 35 U.S.C. § 103a as being unpatentable over Kim, et al. The Applicants respectfully disagrees with the Examiner's view of the reference. What the Examiner has identified as a door, is in reality, a leaf spring 80. The leaf spring is formed in such a manner that it has the ability to crimp the front end of a molded elastomer tubing material (a resilient sleeve 12). The purpose of the sleeve 12 appears to be to create a seal when two fiber optical ferrules are joined. This spring closes the end of the sleeve in much the same way that one would pinch the end of a flexible surgical tube. When a connector is inserted into the housing the active insertion displaces a spring thus allowing the elastomer to expand to a sufficient diameter for the connector's ferrule to enter the elastomer's bore to achieve a seal about the support tube. (Please see Column 5, lines 51-67 and Column 6, lines 1-67, Column. 7, lines 1-7.)

Accordingly, the reference fails to disclose or suggest the claimed elements of the present invention. Withdrawal of the present grounds and allowance of the rejected claims is respectfully requested.

**III. CONCLUSION**

Neither Kim, et al., nor Roth references disclose or suggest all the claims elements of the present invention. The claims of the present invention are neither obviated nor anticipated by the cited references and no additional references have been provided to established their required prima facie case. The Applicants respectfully request the allowance of all presently pending claims.

If there are any matters that may be resolved or clarified through a telephone interview, the Applicants' Attorney makes himself available at the telephone number listed below.

Alternately, the Examiner may fax communications directly to the Applicants' Attorney at the facsimile number listed below.

The Applicants believe that no fees are necessary in relation with the filing of the present communication other than the two-month extension. If the Applicants are mistaken, the Applicants hereby authorize the Commissioner to deduct any additionally required fees from or credit any overpayment to Deposit Account 13-3723.

Respectfully submitted,

9/19/02  
Date

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Case No. 55243US009

First Named Inventor: Loder, Harry A.

Group Art Unit: 2874

Application No.: 09/643,333

Examiner: Sung H. Pak

Title: OPTICAL FIBER CONNECTOR SYSTEM

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**Version With Markings to Show Changes Made**

23. (Amended) A backplane connector assembly for making optical connections through a backplane, the connector assembly comprising

a backplane housing defining at least one longitudinal receiving cavity through the backplane, the receiving cavity having a frontal opening along the front surface of the backplane member configured to receive a first optical connector and a rear opening along the back surface of the backplane member configured to receive a second optical connector;

a single-piece integral spring member foldable frontal door at least [partially] covering

[the] a center portion of the frontal opening; and

a single piece integral spring member foldable rear door at least [partially] covering [the]

a center portion of the rear opening;

wherein the doors automatically close when an optical connector member is not placed in

the respective opening and automatically fold when a connector member is

inserted into the respective opening, wherein the front door and the rear door

operate independently from each other.

24. (Amended) The backplane connector assembly of claim [22]23, wherein at least one of the doors includes an electrically conductive material and the door is electrically grounded.

25. (Amended) The backplane connector assembly of claim [24]23, wherein the backplane housing includes a dielectric material and is not electrically conductive.

26. (Amended) The backplane connector assembly of claim [22]23, wherein the backplane housing is electrically conductive and is electrically grounded and the doors are non electrically conductive.

27. (Amended) The backplane connector assembly of claim [22]23, wherein the doors comprise a foldable spring design that folds into the opening when a connector is inserted into the opening.

28. (Amended) The backplane connector assembly of claim [22]23, wherein [the]each door[s] comprises a single stamped metal part [spring biased element] coupled to a hinge element.

29. (Amended) The backplane connector assembly of claim [22]23, wherein the backplane housing defines a plurality of linearly stacked receiving cavities.

30. (Amended) The backplane connector assembly of claim 29, [wherein the doors comprise pairs of spring biased element coupled to a hinge element, each spring biased element covering one opening.]each comprising a single stamped metal part having a first wing and a second wing and a hinge portion, wherein each door in two adjoining linearly stacked receiving cavities comprises one of the wings and the hinge portion is attached to a dividing wall between the two adjoining receiving cavities.

31. (Amended) The backplane connector assembly of claim [22]23, wherein the backplane housing includes frame features that assure a tight fit of the doors within the opening in a closed position.